

CLAIMS

1. An antibody comprising two heavy chain variable regions and two light chain variable regions, wherein the antibody is a single chain polypeptide having a binding activity
5 against human leukocyte antigen (HLA).

2. The antibody of claim 1, wherein the two heavy chain variable regions and two light chain variable regions are arranged in the order of heavy chain variable region, light chain variable region, heavy chain variable region, and light chain variable region, starting from the N
10 terminus of the single chain polypeptide.

3. The antibody of claim 1 or 2, wherein the two heavy chain variable regions and two light chain variable regions are linked by a linker.

4. The antibody of claim 3, wherein the linker comprises 15 amino acids.

5. The antibody of any one of claims 1 to 4, wherein HLA is HLA class I.

6. The antibody of claim 5, wherein HLA class I is HLA-A.

7. The antibody of any one of claims 1 to 6, wherein the antibody is sc(Fv)2.

8. An sc(Fv)2 comprising heavy chain variable regions that comprise CDR1, 2, and 3 consisting of the amino acid sequences of SEQ ID NOs: 3, 4, and 5.

9. An sc(Fv)2 comprising light chain variable regions that comprise CDR 1, 2, and 3 consisting of the amino acid sequences of SEQ ID NOs: 6, 7, and 8.

10. An sc(Fv)2 comprising heavy chain variable regions that comprise CDR1, 2, and 3 consisting of the amino acid sequences of SEQ ID NOs: 3, 4, and 5, and light chain variable regions that comprise CDR 1, 2, and 3 consisting of the amino acid sequences of SEQ ID NOs: 6, 7, and 8.

11. An sc(Fv)2 comprising heavy chain variable regions that comprise the amino acid sequence of SEQ ID NO: 10.

12. An sc(Fv)₂ comprising light chain variable regions that comprise the amino acid sequence of SEQ ID NO: 12.

13. An sc(Fv)₂ comprising heavy chain variable regions that comprise the amino acid sequence of SEQ ID NO: 10, and light chain variable regions that comprise the amino acid sequence of SEQ ID NO: 12.

14. An sc(Fv)₂ comprising the amino acid sequence of SEQ ID NO: 14.

15. An sc(Fv)₂ comprising the amino acid sequence of SEQ ID NO: 2.

16. An sc(Fv)₂ comprising an amino acid sequence with one or more amino acid substitutions, deletions, additions, and/or insertions in the amino acid sequence of any one of claims 8 to 15, wherein the sc(Fv)₂ also has an activity equivalent to that of the antibody of any one of claims 8 to 15.

17. A polynucleotide encoding the antibody of any one of claims 1 to 16.

18. A polynucleotide that hybridizes with the polynucleotide of claim 17 under stringent conditions, and encodes an antibody having an activity equivalent to the antibody of any one of claims 1 to 16.

19. A vector comprising the polynucleotide of claim 17 or 18.

20. A host cell carrying the polynucleotide of claim 17 or 18, or the vector of claim 19.

21. A method for producing the antibody of any one of claims 1 to 16, wherein the method comprises the steps of:

- (a) preparing an HLA-recognizing antibody;
- (b) producing a polynucleotide encoding the antibody of any one of claims 1 to 16 based on the sequence of the antibody prepared in (a);
- (c) constructing a vector comprising the polynucleotide of (b);
- (d) introducing the vector of (c) into host cells; and
- (e) culturing the host cells of (d).

22. A cell death-inducing agent comprising the antibody of any one of claims 1 to 16 as an active ingredient.

5 23. The cell death-inducing agent of claim 22, wherein the agent has cell death inducing activity against B cells or T cells.

24. The cell death-inducing agent of claim 23, wherein the B cells or T cells are activated B cells or activated T cells.

10 25. A cell growth inhibitory agent comprising the antibody of any one of claims 1 to 16 as an active ingredient.

15 26. An antitumor agent comprising the antibody of any one of claims 1 to 16 as an active ingredient.

27. The antitumor agent of claim 26, wherein the tumor is a blood tumor.

28. A therapeutic agent for autoimmune diseases, wherein the agent comprises the antibody of any one of claims 1 to 16 as an active ingredient.